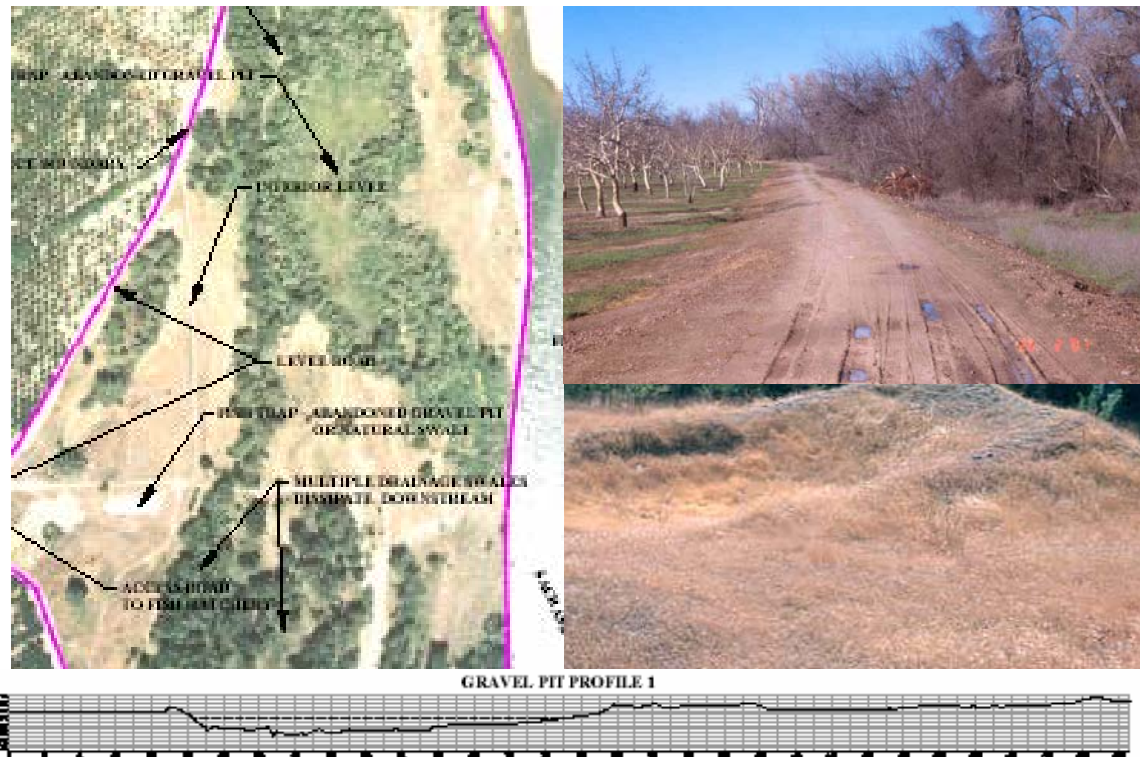


Proposal for Floodplain Reconnection and Restoration on La Barranca and Blackberry Island

Sacramento River National Wildlife Refuge
Sacramento River Mile 237.5-240
Tehama County, California

February 14, 2003



Prepared for:

The Department of Water Resources
Flood Protection Corridor Program (FPCP) of the
Costa Machado Water Act of 2000 (Proposition 13)



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General Information

Project Name:

Floodplain Reconnection and Restoration on La Barranca and Blackberry Island

Project Location:

La Barranca Unit Sacramento River Mile (RM) 237.5-239.5 R and Blackberry Island RM 239-240 L

County:

Tehama

Name and address of sponsoring agency or non-profit organization:

Sacramento River Partners
539 Flume Street
Chico, California 95928

Name of Project Manager (contact): Dan Efseaff

Phone Number: (530) 894-5401, ext 21 **E-mail Address:** defseaff@riverpartners.org

Grant Request Amount: \$2,523,050

_____	<u>Restoration Ecologist</u>
Project Manager	Title

February 12, 2003

Date

Project Objective(s): Sacramento River Partners proposes a comprehensive floodplain reconnection and riparian restoration project on approximately 900 acres of the La Barranca and Blackberry Island Units of the US Fish and Wildlife Service. Details of the site setting and alternatives considered are presented in a Feasibility Study (SRP 2002) (Phase I). The USFWS is seeking funding to develop environmental compliance documentation (Phase II) for implementation of the project.

The proposed project (Phase III) will: 1) Remove entrapment hazards posed by frequently flooded (2-4 years flood interval) gravel pits (some as large as 13 acres), 2) Reconnect the river and restore topography to the floodplain currently blocked by a 900-foot long unpermitted, privately constructed levee and several raised roads, 3) Implement control measures for invasive non-native plant species that threaten the biological integrity of the site, and 4) restore 500 acres (450 acres on the La Barranca Unit and 50 acres across the river on the Blackberry Island Unit) with native riparian plants.

Flood Protection Corridor Program

I. Proposed Project Description

A. Introduction

Sacramento River Partners seeks \$ 2,636,017 from the Flood Protection Corridor Program (FPCP) of the Costa Machado Water Act of 2000 (Proposition 13) to fund a comprehensive floodplain reconnection and restoration project (Phase III) on the La Barranca and Blackberry Island Units of the Sacramento River National Wildlife Refuge (Refuge). The project fits into FPCP goals by enhancing the flood protection corridor and correcting existing problems associated with past topographical changes and riparian habitat conversion.

The proposed project continues previous efforts. The property acquisition and a Feasibility Study (Phase I) have already been completed. Both units are owned and managed by the US Fish and Wildlife Service (USFWS), which is seeking funding for the completion of the Environmental Assessment (Phase II) through the Anadromous Fish Restoration Program (AFRP).

This proposal generally follows the outline presented in the application form, with this first section addressing the applicable information listed in Section 497.7 of Title 23, California Code of Regulations, Division 2.

B. Problem Description

In 1993, the 702.5-acre La Barranca Unit became part of the USFWS's Sacramento River National Wildlife Refuge (Figure 1). At the time of purchase, approximately, 422 acres were in walnut production, 28 acres in almonds, and 252.5 acres in riparian habitat, which has since increased because of river movement (Figure 2). The 63-acre Blackberry Island Unit became part of the Refuge in 2002. Approximately 30 acres of this unit is an open fallow field.

The existing orchard was split at the time of purchase to follow topographical features. Refuge property lies on the flood prone portion of the property that falls below a bench that represents the high water mark associated with a 4-5 year flood frequency. The property above the boundary floods much less frequently (>5-25 year flood return interval). Therefore, frequent flood flows will be contained on Refuge property benefiting east bank homes and infrastructure without increasing flooding off of Refuge property.

In June 2002, Sacramento River Partners completed a feasibility study (SRP 2002) on floodplain restoration alternatives for the 305 acres of the La Barranca Unit impacted from gravel mining operations (Figure 2). An electronic version of this study is submitted with this application.

Insert

**Figure 1. La Barranca and Blackberry Island Units (Sacramento River Mile 239 R)
Project Location.**

Insert

**Figure 2. La Barranca and Blackberry Island Units (Sacramento River Mile 239 R)
Project Area.**

This proposed project follows the recommendations in the study and will:

- **Reduce entrapment hazards to native fish (especially salmonids).** Past gravel mining operations left numerous pits and mounds, which pose a fish entrapment risk. Some of these areas are relatively small, but the riverside gravel pit (7.5 acres) and the internal gravel pit (13 acres) pose significant threats, because of their size, exposure to frequent flooding (every 2-4 years), and poor downstream connection to existing drainage patterns (please see SRP 2002).
- **Reduce flood damages and reconnect the floodplain and river.** Over 50 homes and other structures lie within 1,500 feet of the east bank of the Sacramento River near the project. Changes in topography, such as an unpermitted levee, roads, and gravel pits, disrupt the historical flood patterns. The proposed project would remove these barriers and improve floodplain storage, reduce peak flood flows, and protect homes and residents across the river (non-structural flood protection). These remedies would allow flood flows and deposition of debris and sediment on USFWS owned land (floodplain processes).
- **Enhance existing riparian vegetation on the site.** The existing riparian habitat contains a unique combination of communities that support a broad range of fish (salmon spawn in adjacent riffles) and wildlife (the La BARRanca Unit supports one of the highest bird diversities along the Sacramento River). Invasive, exotic plant species (notably arundo, ailanthus, pepperweed, tamarisk, yellow starthistle, and Johnson grass) threaten the biological integrity of the site and of properties in conservation ownership stretching for over 10 miles downstream. The proposed project would target the most invasive species.
- **Create a large contiguous block of new riparian habitat.** The proposed project adds approximately 500 acres of riparian forest along the Sacramento River, or roughly a 10% increase to the existing forest in this 49-mile reach (DWR 1998). The orchard on La BARRanca and abandoned agricultural field on Blackberry Island are excellent candidates for active restoration because of their size, proximity to other Refuge land, and location in the floodplain. Current processes (i.e. past agricultural practices, modified hydrograph and flood patterns, invasive weeds, and rodent herbivory) favor undesirable non-native plants, which may exclude native riparian plants for decades. Active restoration will “jump start” succession at the site and provide measurable benefits to wildlife species in a short period of time (for example, increases in bird usage have been demonstrated within 3 years).

We propose to combine these activities to maintain economies of scale for planning and implementation.

C. Addressing problem and matching with FPCP priorities

To address these issues, the proposed project will:

- Restore 500 acres (approximately 470 acres on the La BARRanca Unit and 30 acres across the river on the Blackberry Island Unit) with native riparian plants,

- Breech or remove the levee (reconnecting the floodplain to the river),
- Reduce fish entrapment and provide non-structural floodwater retention,
- Conduct a hydraulic evaluation,
- Complete environmental compliance documentation (part of Phase II), and
- Implement weed control and replant with native species in targeted areas of the existing riparian forest and former gravel mining areas (approximately 400 acres).

Environmental compliance funds are being sought through the Anadromous Fish Restoration Program (AFRP). This project addresses many of the elements of the FPCP by enhancing the flood protection corridor, restoring natural processes, and providing wildlife benefits (please see Section III).

D. Project Approach

We are seeking funding primarily for the third and final phase of this project (Table 1). The proposed project will use demonstrated methods to address floodplain and restoration concerns on the Units, and planning effort that keeps local interests informed. During implementation, Sacramento River Partners will use a science-based adaptive management approach to provide a flexible, hypothesis-driven framework (SRP 2002) to respond to new information and changing conditions. We propose a comprehensive planning and implementation effort to cost effectively implement the specific remedies for each issue (Table 2).

Table 1. Phases of the La Barranca and Blackberry Island Floodplain Restoration Project.

Phase	Name	Tasks/Status
I	Feasibility Study	Completed June 2002. The study collected site information (especially on current site conditions and topography), developed alternatives, identified data gaps, and provides much of the information needed for the Environmental Assessment.
II	Environmental Assessment (EA)	The USFWS is seeking funding from AFRP sources. Additional funding may be necessary for the hydraulic/hydrological analysis. This task would provide compliance with NEPA, obtain the necessary permits, and further refine implementation details.
III	Implementation	This phase would implement the preferred alternatives to fish entrapment, floodplain reconnection, and riparian restoration. Includes some of the more detailed planning efforts and hydraulic analysis. Funding sought from FPCP.

Table 2. Summary of Proposed Remedies for the La BARRANCA and Blackberry Island Units.

Issue	Problem	Proposed Remedy
1	Potential fish entrapment from gravel mining operations	Grade an outlet for the riverside gravel pit. Modification of this alternative, namely increasing the outflow without filling the gravel pit will be considered, (somewhat resembling a cut-off oxbow) to maintain the value of the wetland and decrease the potential of fish entrapment.
2	Levee limiting flood flows onto floodplain	Remove the levee and fill the interior gravel pit (please see SRP 2002), and reconnecting the river during flood events to an existing swale. Additional grading along the swale and on roads will reduce entrapment threats while enhancing flood flows across the site.
3	Invasive weeds pose threat to unit and downstream conservation lands	Weed control and replanting of low maintenance native plants in targeted areas of the existing riparian forest and in re-graded areas (approximately 400 acres).
4	Land in conservation ownership providing poor wildlife habitat (abandoned and active agricultural land)	Develop a plant design that provides habitat characteristics for targeted wildlife species and addresses hydraulic issues and implement active restoration (planting of native species with intensive short-term management) on over 500 acres.

E. Expected project outcomes and benefits

We anticipate this proposed project to:

- Restore high quality mixed riparian habitat (including native grass in targeted areas) on nearly 500 acres. Establish target numbers (which typically corresponds to 70 percent survivorship or greater) of planted woody species at the end of three years.
- Reintroduce more natural drainage patterns to allow native fish access to the floodplain and reduce entrapment hazards.
- Control noxious weeds and replace with native plants on targeted areas of an additional 400 acres (project activities will influence over 900 acres).
- Reconnect riparian habitat and reduce weed sources on the most upstream holdings of 10 miles of land in conservation ownership.
- Enhance Shaded Riverine Aquatic Habitat on approximately 3,000 feet of streambank (along a former channel on the southern area of the site).
- Host meetings and field trips to engage local stakeholders in the project.
- Cap existing groundwater wells, reducing the potential for ground water contamination and overdraft.
- Monitor plant survival and growth, avian usage and evaluate post-construction fish entrapment and geomorphological changes (present results in end of season and final reports).
- Develop 1) a comprehensive restoration and reconnection plan, 2) two end of season reports, and 3) a final report.

F. Project boundaries

The La Barranca Unit (T26N, R2W, Sec. 6-7, T26N, R3W, Sec. 1, 11 and 12) is located on the west bank (River Mile 237.5-239.5) of the Sacramento River, approximately 5 miles northeast of Gerber, California and approximately 5 miles southeast of Red Bluff, California (Figure 1). The entire unit occupies 702.5 acres. The La Barranca Unit is the northernmost property in a nearly 10-mile long strip of land in conservation ownership on the right bank (Figure 3). The bank of the Sacramento River defines the eastern and southern borders of the project area (approximately 8,700 feet). A road between the project area and the adjacent privately owned orchard defines the western boundary.

Opposite the northern tip of the La Barranca Unit is the Blackberry Island Unit (RM 239L). Blackberry Island occupies approximately 63 acres and is separated from the east bank by a swale that is dry during low flows.

G. Location within qualifying areas

The project site is located within the floodplain designated by The Reclamation Board under Water Code Section 8402(f).

H. Technical feasibility

All proposed tasks have been successfully completed on other areas of the Sacramento River, but this project is unique in that all of these elements are present within a single

project. In 2000, the US FWS removed private levees on the Flynn Unit (RM 231) and Rio Vista (RM 217) Units. In addition the earthwork required for the levee removal, and pit grading is relatively modest. Sacramento River Partners has successfully initiated similar riparian restoration projects on nearly 2,000 acres on floodplains in the Central Valley.

I. Hydrologic and hydraulic analysis

These potential hydrologic and hydraulic effects from re-grading and restoration activities will be considered as part of the Environmental Assessment. The analysis will consider the selected alternatives to examine the effects of topographical changes on flood flow patterns and peak flows. A relatively simple hydraulic model will be used to examine project effects near the project (approximately 2 river miles), although the analysis will consider the effects to the town of Tehama. The analysis will also provide a means to design the drainage of the riverside gravel pit to specific flood events (i.e. 4 year events).

Supplementing the topographic information developed in the feasibility study with additional field collected data or with the forthcoming Army Corps of Engineers elevation data, plus the bathymetry data collected by DWR, will allow for a broader understanding of the area topography and anticipate any hydraulic effects.

J. Environmental compliance and list of required permits

We have completed an Environmental Checklist (attached), but as federal property, compliance will be covered under NEPA. Phase II of the project will address environmental compliance issues. Products from this step includes a completed Environmental Assessment, and consultation and/or securing the following a Section 7 consultation with NMFS and USFWS, a CDFG Streambed Alteration Permit, ACOE 404 permit, and Water Quality Clearance 402. A hydraulic evaluation will be completed during this phase.

K. Tentative work plan

Project tasks for Phase III can be divided into the tasks shown in Table 3. Many of the project details would be developed as part of the restoration plan, but the list provides a general idea as to the scope and scale of work proposed for the project. A proposed timeline is proposed in Figure 3. We anticipate that the Environmental Assessment will be completed by Fall 2003. Some of the planning tasks can be initiated during the Environmental Assessment and may aid its completion. Planting would occur in spring 2004. Field operations will be completed by the Fall 2006.

Table 3. Description of Proposed Project Tasks

Task	Activities
Planning	Conduct a site assessment, and complete a restoration plan that details plans for cut and fill operations, develop planting composition and density patterns based on the hydrologic, geologic, edaphic (soil), biologic (baseline special status species, migratory birds, plants and vegetation) and historic conditions at the site, outline the planting, irrigation, and weed control strategies for the site.
Weed control in existing areas	Complete weed control, and planting of native species in existing riparian areas and cut/filled gravel pit areas. We are contacting the California Conservation Corps (CCC) about conducting some of the tasks related to this task.
Earthmoving	Topographical and Floodplain Reconnection (including 1) the riverside gravel pit and nearby minor features, 2) the levee and interior gravel pit areas, and minor features on the orchard area. Approximately 40,000 cubic yards of material will be cut/filled in these areas.
Field Preparation	Remove the orchard trees, and prepare the site for planting.
Irrigation system installation and repair, irrigation.	Develop, install (or refurbish), and repair the irrigation system, and irrigate plants during the growing season. The uneven nature of the site will require use of the existing sprinkler system or installation of a drip irrigation system. This task also includes the decommissioning of unneeded wells on the site for public health and safety issues.
Planting and replanting	Collect and propagate local plant material needed for restoration and plant cuttings and potted stock in the field. Native grasses will be planted where appropriate and determined by the hydrologic study and site assessment. Replant as necessary.
Maintenance	Conduct routine operations to allow the plants to become established.
Monitoring and Reporting	Measure project performance through plant survival and growth, avian point-count surveys, and a post-construction evaluation of fish entrapment and geomorphological changes. Report project activities and monitoring results in end of season reports (which will also serve as a vehicle for communicating adaptations on the project)
Project management	SRP will manage and administer the project. Host informational meetings for interested parties, such as local residents and other stakeholders. Maintain good communication with neighbors and throughout project. The USFWS will oversee the project.

L. Financial summary

Sacramento River Partners seeks \$2,523,050 for Phase III (implementation). Phase I (Feasibility Study) has already been completed (\$40,000 from AFRP). The USFWS is seeking funding for Phase II (Environmental Assessment, \$60,000) from AFRP sources. Costs by task are shown in Table 3.

Table 4. Project Budget for La BARRanca and Blackberry Island Units, Sacramento River

Task	Direct Labor Hours	Direct Salary	Service Contracts	Material Costs	Miscellaneous and other Direct Costs	Overhead and Indirect Costs	Total Cost
Weed Control	320	\$ 10,051	\$ 5,000	\$ 1,500	\$ 300	\$ 3,539	\$ 20,390
Earthmoving Activities	1000	\$ 31,410	\$ 225,000	\$ 10,000	\$ 10,000	\$ 58,046	\$ 334,456
Planning	1425	\$ 44,759	\$ 53,500	\$ 2,500	\$ 8,500	\$ 16,389	\$ 125,648
Field Preparation	875	\$ 27,484	\$ 87,500	\$ 1,000	\$ 4,500	\$ 18,073	\$ 138,556
Irrigation	750	\$ 23,558	\$ 75,000	\$ 212,500	\$ 2,400	\$ 47,019	\$ 360,476
Planting	3125	\$ 98,156	\$ 130,000	\$ 220,000	\$ 42,500	\$ 73,598	\$ 564,255
Maintenance	3250	\$ 102,083	\$ 125,000	\$ 75,000	\$ 42,000	\$ 51,612	\$ 395,695
Monitoring and Reporting	2625	\$ 82,451	\$ 20,000	\$ 3,000	\$ 6,000	\$ 16,718	\$ 128,169
Project Management	7500	\$ 235,575	\$ 17,000	\$ -	\$ 6,000	\$ 38,786	\$ 297,361
Contingencies	2000	\$ 62,820	\$ 25,000	\$ 25,000	\$ 25,000	\$ 20,224	\$ 158,044
Totals	21550	\$ 718,347	\$ 763,000	\$ 550,500	\$ 147,200	\$ 344,003	\$ 2,523,050

Insert

Figure 3. Proposed Schedule of Tasks for the La Barranca Floodplain Reconnection and Restoration Project.

M. Local participation

During Phase , we conducted 4 meetings with neighbors to communicate the project and gather input and concerns. We will maintain an open, inclusive process during implementation. Sacramento River Partners has a good neighbor policy on its projects and will seek input during project implementation. The results of the Feasibility Study have been presented to the Sacramento River Conservation Area Forum (SRCAF). The proposed project includes 2 interested party information meetings, in addition to the public input that will be solicited as part of the Environmental Assessment.

N. Analysis of benefits to wildlife habitat

As part of a 10-mile long riparian corridor protected under public ownership, the La BARRanca Unit has excellent wildlife potential because of its proximity to the river and high diversity of vegetative structure. Some of the findings from SRP (2002) can be summarized as follows:

- The La BARRanca Unit contains a unique assemblage of plants that indicate the influence of upland and riparian communities.
- The site potentially supports a variety of mammalian wildlife species such as mule deer, jackrabbit, raccoon, bobcat, river otter, striped skunks, ring-tailed cat, grey foxes, and elderberry plants on the site may provide habitat for the valley elderberry longhorn beetle.
- A bald eagle roost tree, osprey nest, and 2 bank swallow colonies have been observed on site (USFWS personal communication).
- USFWS and Point Reyes Bird Observatory (PRBO) avian surveys in the existing riparian forest demonstrate some of the highest species diversity and richness found along the Sacramento River. Thirty-five riparian bird species were observed during the PRBO point count survey and 37 different bird species during the USFWS winter survey.
- The site lies on the Red Bluff to Tehama Bridge reach that sees on average 5.8% of the winter run population (from 1987-2000) and 18.1% of the fall-run population (from 1969-2000) that spawn in this reach. The downstream end of the gravel bar at Blackberry Island at RM 239.5 offers one of the best spawning locations for fall-run Chinook.
- Beavers have colonized the riverside gravel pit and their activities have modified the vegetation in and around the pit, providing an area that supports the most diverse number of plants.

The proposed project improves wildlife habitat by reducing the impacts associated with orchard operation, greatly expanding the riparian forest and connecting forest fragments, reducing the risk of salmonid entrapment, providing habitat for riparian dependent species and contributing high quality nutrient inputs to the system, among others.

O. Statement of qualifications

Sacramento River Partners (SRP) is a California non-profit corporation founded in 1998 under current Federal 501 (c) (3) registration dedicated to the mission of creating wildlife habitat for the benefit of people and the environment. In the last 4 years SRP has secured \$11,000,000 in public and private funding, built a staff of 21 full time employees and developed the organizational capacity to carry out this mission. We are in the process of restoring 1,700 acres on 16 separate projects along both the Sacramento and San Joaquin Rivers. We recently acquired a \$1.7 million dollar riverside property and hold purchase agreements on two other parcels. SRP's science team has completed fish entrapment studies, Valley Elderberry Longhorn Beetle surveys, and pre-restoration plans for several agencies.

Sacramento River Partners has the experience, expertise and resources to solve problems and develop meaningful solutions. We have worked with a variety of state and federal agencies, research institutions, non-profit organizations, and private landowners.

John Carlon – President

Mr. Carlon has extensive knowledge in agriculture and restoration. He obtained a B.S. in agronomy and horticulture from C.S.U. Chico and a M.S. in International Agricultural Development from C.S.U. San Luis Obispo. Mr. Carlon has been engaged in land protection and riparian restoration on the Sacramento River for the last 10 years. He has had direct involvement in the acquisition and restoration of over 1,700 acres along the Sacramento River.

Bernard Flynn – Vice President

Mr. Flynn has 18 years of experience as a farm manager. He obtained a B.A. from Harvard and a M.A. from C.S.U. Chico. Mr. Flynn has developed several innovative restoration practices including a software program that facilitates field planting and monitoring of species survival.

Tom Griggs – Senior Restoration Ecologist

Dr. Griggs has 22 years of experience in riparian restoration. He developed the original riparian restoration efforts on the Sacramento River and has been published extensively in professional journals on riparian restoration. He obtained a B.S. in biology from California Polytechnic University, Pomona, a M.S. in Botany from C.S.U. Chico and a Ph.D. in ecology from U.C. Davis.

Dan Efseaff – Restoration Ecologist

Mr. Efseaff received a B.S. in biology from U.C. Davis and a M.S. in biology from C.S.U. Chico, where he researched the interaction of riparian tree roots with soil types. Mr. Efseaff has broad experience working for natural resource agencies, consulting firms, and research institutions. He has developed sampling programs, prepared ecological risk assessments, conducted botanical surveys and constructed plant designs based on soil types.

Mary Ellen Morris – Controller

Mrs. Morris has 13 years of practical experience in accounting work for financial service, agribusiness and healthcare companies. She obtained her B.S. in Business Administration from Ohio State University and her Masters in Business Administration from the University of Laverne.

P. Attorney Certification

Sacramento River Partners has entered into several agreements with the state of California. A written statement certifying that Sacramento River Partners is authorized to enter into such grant agreements is attached.

Insert Mr. Howard letter here

II. General Information

Please see page 1.

III. Minimum Qualifications

- A. ρ The project proposes to use any granted funds for protection, creation, and enhancement of flood protection corridors *[Water Code Section 79037(b)]*.

The project will enhance the flood protection corridor.

- B. ρ A local public agency, a non-profit organization, or a joint venture of local public agencies, non-profit organizations, or both proposes the project *[Water Code Section 79037(a)]*.

Sacramento River Partners is a local 501(c)3 non-profit organization.

- C. ρ The project will use the California Conservation Corps or a community conservation corps whenever feasible *[Water Code Section 79038(b)]*.

Sacramento River Partners is proposing to work with the local CCC office to conduct some of the weed control activities related to the project.

- D. ρ If it is proposed to acquire property in fee to protect or enhance flood protection corridors and floodplains while preserving or enhancing agricultural use, the proponent has considered and documented all practical alternatives to acquisition of fee interest *[Water Code Section 79039(a)]*.

- E. ρ Holders of property interests proposed to be acquired are willing to sell them *[Water Code Section 79040]*.

- F. ρ If it is proposed to acquire property interests, the proposal describes how a plan will be developed that evaluates and minimizes the impact on adjacent landowners prior to such acquisition and evaluates the impact on the following *[Water Code Section 79041]:.....*

The proposal must also describe maintenance required for a) the acquired property, b) any facilities that are to be constructed or altered.

Acquisition is not a part of this project. The proposed project is on land already owned by the USFWS who has long-term maintenance of the property.

- G. ρ The project site is located at least partially in one of the following:

1. A Federal Emergency Management Agency (FEMA) Special Flood Hazard Area (SFHA), or
2. An area that would be inundated if the project were completed and an adjacent FEMA SFHA were inundated, or
3. A FEMA SFHA, which is determined by using the detailed methods identified in FEMA Publication 37, published in January 1995, titled "Flood Insurance Study Guidelines and Specifications for Study Contractors", or
4. A floodplain designated by The Reclamation Board under Water Code Section 8402(f) [*Title 23, California Code of Regulations, Division 2, Section 497.5(a)*], or a
5. Locally designated Flood Hazard Area, with credible hydrologic data to support designation of at least one in 100 annual probability of flood risk. This is applicable to locations without levees, or where existing levees can be set back, breached, or removed. In the latter case, levee setbacks, removal, or breaching to allow inundation of the floodplain should be part of the project.

The project is located on a floodplain designated by The Reclamation Board under Water Code Section 8402(f) [*Title 23, California Code of Regulations, Division 2, Section 497.5(a)*].

IV. (340 points) Flood Protection Benefits

A. Existing and potential urban development in the floodplain (50)

1. Describe the existing and potential urban development at the site and the nature of the flood risk.

Urban development is absent from the La BARRANCA Unit, and as Refuge property, is unlikely to occur in the future. Development on the west side of the river is limited due to flooding concerns. Development is apparent on the east side of the river with numerous homes, Dairyville, and Highway 99 are within 1 mile of the project (east or left bank).

2. How often has flooding occurred historically?

Based on photographic and partial modeling (modeling did not extend northward of RM 238) analyses by DWR, most of the entire project area is flooded during 2.5-4 year flood events (Figure 10, SRP 2002). The previous landowner most likely built the levee not to prevent flooding but to limit high velocity flows that could erode soil or deposit debris and sediment on the orchard. The frequent flooding of the gravel pits is one of the principal concerns of fish entrapment on the site.

3. Discuss the importance of improving the flood protection at this location. Include the number of people and structures that are affected by the flood hazard, and the flood impacts to highways and roads, railroads, airports and other infrastructure, and agriculture.

Flood protection is an important concern in this segment of the river. This project is in the SAC-1 Economic Assessment Area noted in USACE (1999). Within the 100-year FEMA zone structures and contents are valued at \$698 million with 11,080 people at risk. The city of Tehama (7 river miles downstream) is one of the most sensitive areas along the Sacramento River to flooding (the operation of Shasta dam is often tied to flood stage at Tehama). Land-use in the area is mainly agricultural (orchards). Immediately across the river, numerous homes front the river on private property, and Highway 99 is less than 2,000 feet away from Blackberry Island.

B. Flood damage reduction benefits of the project (100)

1. Does the proposed project provide for transitory storage of floodwaters? What is the total community need for transitory storage related to this watercourse and what percentage of the total need does this project satisfy? What is the volume of water and how long is it detained?

Because of the potential for damage noted above, the community need for floodwater storage is significant (although we could not find quantification of the volume needed). Upstream, the river is constrained by geologic control, elevation, and urban development; the La BARRANCA Unit represents one of the first opportunities for floodwater retention as the river drops into the valley. Reconnecting the river and floodplain allows floodwater to more readily enter the site and provide transitory storage. As a crude estimate, the site would provide approximately 1,500 acre-feet of storage during a 4-year event (assuming that the site floods to a depth of about 3 feet, depth during events range between 2-10 feet). Revegetation on the site, will slow the retention of this water.

2. Describe any structural and non-structural flood damage reduction elements of the project. (Examples of structural elements are levees, weirs, detention/retention basins, rock slope-protection, etc. Examples of non-structural elements are acquisition of property for open space, acquisition of land for flood flow easements, transitory storage, relocation of structures and other flood prone development, elevating flood prone structures, flood proofing structures, etc.)

The proposed project provides non-structural flood damage reduction to local properties by remedying the disruption of local topography from gravel extraction, levee placement, and agricultural activities. Flood damage reduction benefits come from several sources. Levee removal and road re-grading will better connect 460 acres of floodplain to the river, reducing peak flood flows in the area. Numerous homes on the east bank and potentially the town of Tehama would benefit from attenuated flood flows

due to the levee removal and flood plain retention. Converting the flood-prone orchard (owned by USFWS) will remove the potential for damages, and the riparian forest will be compatible with extended flooding.

3. By what methods and by how much dollar value will the project decrease expected average annual flood damages?

In 1997, flooding caused an estimated \$2.5 million in damage in Tehama County alone (USACE 1999). The proposed non-structural measures (topographical restoration) will better connect over 460 acres of floodplain with the river, potentially benefiting some of the 11,080 people and \$698 million worth of property within the 100 year FEMA zone in this economic area (USACE 1999). In addition, converting nearly 500 acres to riparian forest will reduce runoff in comparison to the current land use. Furthermore, converting the flood-prone orchard will reduce the financial burden associated with future flood damage. For example, the orchard suffered over \$40,000 damage during the 1997 flood, and in average years, flooding causes an estimated \$4,000-\$5,000 damage annually (USFWS personal communication). This does not include estimates of loss of production from the effects of flood.

4. How does the project affect the hydrologic and hydraulic conditions at the project site and adjacent properties?
 - a) Will the project reduce the magnitude of a flood flow, which could cause property damage and/or loss of life?
 - b) What are the effects of the project on water surface elevations during a flood event, which could cause property damage and/or loss of life?
 - c) How are flow velocities impacted by the project during a flood flow, which could cause property damage and/or loss of life?

The hydrologic effects of the project will be assessed as part of the Environmental Assessment, but the measures proposed will likely increase floodwater retention and attenuate flood flows (magnitude) downstream, reduce water surface elevation, and reduce flood flows during flood events. Although these benefits may be small in terms of the entire system, they may be important locally.

C. Restoration of natural processes (60)

1. Describe how any natural channel processes will be restored (for example: for channel meander, sediment transport, inundation of historic floodplain, etc.) and describe how these natural processes will affect flood management and adjacent properties.

La Barranca represents the transition of the Sacramento River to a fully meandering river starting at about river mile 238.5. Upstream, from RM 243-238.5, the river is generally straight with gravel bars forming at several points and no cut off chutes or oxbow features are apparent on recent photographs. Downstream of this area (RM 238.5-231), the river becomes varied with a variety of channel features such as cut-off channels; anabranches, abandoned channels, and oxbows become more common.

Therefore, the units provide one of the most upstream opportunities to allow floodplain processes over a substantial area.

Removal of the levee and raised roads will allow the river to reclaim these channels and the floodplain during flood events. Revegetating with native plants will trap sediment and debris and provide nutrient sources to the system. By modifying the topography of the riverside gravel pit, we will maintain the desirable wetland qualities of this area.

Because of the topographical break between the Units and adjacent properties, these natural process will likely be contained on the property or conservation properties downstream. However, the project will positively affect properties on the east bank of the river, and therefore has no negative impact to flood management.

2. Describe any upstream or downstream hydraulic or other effects (such as bank erosion or scour, sediment transport, growth inducement, etc.).

Erosion and deposition rates are balanced in this reach (SRP 2002). This project is unlikely to affect in stream sediment transport of coarse material, but the expansion of the floodplain and the planting of vegetation is likely to increase sedimentation of fine textured material. Hydraulic effects of specific designs will be evaluated during Phase II.

3. If the project includes channel modification or bank protection work, will riprap or dredging be part of the design? If so, provide an analysis of potential benefits and impacts.

No channel modification or bank protection work is proposed.

D. Project effects on the local community (60)

1. How will the project impact future flooding on and off this site?

The project may locally lower flood stage and allow for increased floodwater retention by allowing water on the historic floodplain. Downstream impacts are likely lessened by the fact that downstream properties are owned by USFWS. The increased flood flows on the site will help with natural processes and fish use and so will benefit the conservation efforts on the property.

2. How will the project affect emergency evacuation routes or emergency services and demands for emergency services?

No effect. The project will not impact any emergency evacuation routes, emergency services, or demands for emergency services.

3. Explain how the project will comply with the local community floodplain management ordinance and the floodplain management criteria specified in

the Federal Emergency Management Agency's National Flood Insurance Program (FEMA's NFIP).

The project appears to be consistent with local floodplain management.

E. Value of improvements protected (70)

1. What is the assessed value of structural improvements that will be protected by the project?

The proposed project may benefit the approximately 50 houses and other structures located within 1500 feet of the east bank. The estimated value of these houses are between \$2.5 million to \$6 million.

2. What is the estimated replacement value of any flood control facilities or structures protected by the project?

Approximately 2,000 feet of the east bank is protected with rock revetment at an estimated replacement value of \$2 million.

V. (340 points) Wildlife and Agricultural Land Conservation Benefits

A. (340x F_w points) Wildlife Benefits

A1. Importance of the site to regional ecology (70)

1. Describe any habitat linkages, ecotones, corridors, or other buffer zones within or adjacent to the site. How are these affected by the project?

The project will enhance connections to important existing forest fragments and migration corridors. This area of the river provides an important migration corridor for salmon, neotropical birds, and other species. The restored habitat will provide a buffer between the river and adjoining farmland. Many plant species typical of upland or foothill areas, including California buckeye, gray pine, buckwheat, monardella, brickellia, and elymus (Sitanion) species, indicate a greater influence from foothill seed sources, and suggests an important link between upland and riparian areas. These species are uncommon on the lower reaches of the river.

2. Is the site adjacent to any existing conservation areas?

Yes. The units represent the northernmost parcels on over 10 contiguous miles in conservation ownership.

3. Describe any plans for aquatic restoration resulting in in-stream benefits.

The proposed project benefits aquatic species during 2-year (and higher) flood events by reducing the risk of fish entrapment posed from gravel mining. Access to the restored floodplain has been shown to benefit native fish, and this project would enhance access.

4. Discuss any natural landscapes within the site that support representative examples of important, landscape-scale ecological functions (flooding, fire, sand transport, sediment trapping, etc.)?

Examples of ecological functions are evident across the site. Historically, the site was important for gravel deposition, hence what made it attractive to mine. The La Barranca Unit represents the transition of the Sacramento River to a fully meandering river. Upstream, the river is straight with gravel bars forming at several points and no cut off chutes or oxbow features apparent. On the La Barranca Unit, a variety of channel features such as cut-off channels, abandoned channels, and oxbows start to appear. Therefore, the La Barranca and Blackberry Island Units represent important areas where natural processes between the flood plain and river can interact over large areas.

A2. Diversity of species and habitat types (70)

1. Does the site possess any:

- i. areas of unique ecological and/or biological diversity?
- ii. vegetative complexity either horizontally or vertically?

Yes, the La Barranca Unit demonstrates a diverse assemblage of plant and wildlife species that demonstrates a variety of influences (foothill seed sources, flooding, access to water).

2. Describe habitat components including year-round availability of water, adequate nesting/denning areas, food sources, etc.

The restored site would have many important features for wildlife. Water is readily available year round and the variety of soil conditions and vegetative structure would support a variety of wildlife species.

3. Describe any superior representative examples of specific species or habitats.

In addition to the high plant, bird, and mammal diversity noted below, a bald eagle roost tree, osprey nest, and 2 bank swallow colonies have been observed on site (USFWS personal communication).

4. Does the site contain a high number of species and habitat types? List and describe.

Yes, the site contains a high number of species and habitat types. Wildlife have responded to this diversity and a variety of species use the site. For example,

- Although only a cursory survey was completed, the Feasibility Study noted over 100 different plant species on site (SRP 2002). Vegetation is present in a variety of patterns and diversity: grassland, savanna, gravel bar, wetland, open water, forest, and woodland communities are represented.
- USFWS and Point Reyes Bird Observatory (PRBO) avian surveys in the existing riparian forest demonstrate some of the highest species diversity and richness found along the Sacramento River. Thirty-five riparian bird species were observed during the PRBO point count survey and 37 different bird species during the USFWS winter survey.
- The site potentially supports mule deer, jackrabbit, raccoon, opossum, bobcat, river otter, striped skunks, ring-tailed cat, red and grey foxes, and valley elderberry longhorn beetle.
- The downstream end of the gravel bar at Blackberry Island at RM 239.5 offers one of the best spawning locations for fall-run Chinook. Approximately, 18.1% of the fall-run population (from 1969-2000) spawn in this reach.

5. Does the site contain populations of native species that exhibit important subspecies or genetic varieties historically present prior to European immigration?

Not known.

A3. Ecological importance of species and habitat types (100)

1. Discuss the significance of habitat types at this location and include any local, regional, or statewide benefits received by preserving or improving the area.

The Sacramento River is the most important river in the state. Improving 900 acres will contribute to endangered species recovery and ecosystem health of this important area and beyond.

2. Does the site contain any significant wintering, breeding, or nesting areas? Does it fall within any established migratory corridors? What is the level of significance? How are these affected by the project?

Yes. The site is an important migratory corridor for neotropical birds and anadromous fish.

3. Describe any existing habitats that support any sensitive, rare, "keystone" or declining species with known highly restricted distributions in the region or state. Does the site contain any designated critical habitat? How are these affected by the project?

The proposed project potentially benefits a variety of important species: Chinook salmon, steelhead, lamprey, valley elderberry longhorn beetle, bank swallow, western yellow-billed cuckoo, and little willow flycatcher. Benefits will come from the creation of habitat, reduction in fish entrapment hazards, or increased access to the floodplain.

4. What is the amount of shaded riverine aquatic (SRA) and riparian habitat to be developed, restored, or preserved?

Over 900 acres would be impacted with invasive weeds and targeted planting on 400 acres, and the conversion of 500 acres from agricultural uses to high quality riparian habitat. Approximately 3,000 feet of the southernmost portion of the property is adjacent to an former channel with permanent water. This area provides an opportunity to provide SRA. Eventual migration of the river will allow other areas of the restoration to provide a source of SRA and Large Woody Debris.

A4. Public benefits accrued from expected habitat improvements (60)

1. Describe present public use/access, if any. For instance, does or will the public have access for the purpose of wildlife viewing, hunting, fishing, photography, picnics, etc.

The USFWS is currently developing guidelines for all of its units through a Comprehensive Conservation Plan (CCP). The La BARRanca and Blackberry Island Units are candidates for hunting, fishing, education, wildlife viewing, interpretation, and photography. Access will be allowed only from the river. However, activities are likely to be restricted until the orchard area is restored.

As the most important salmon fishery in the state, healthy salmon populations economically affect communities from the valley to the coast. In 1998, recreational anglers (on the Red Bluff to Redding and Red Bluff to Colusa reaches) fished for an estimated 63,000 user days, catching and keeping nearly 30,000 fish, and spending \$5,897,837 in the local economy (Ransom, 2001).

2. Discuss areas on the site that are critical for successfully implementing landscape or regional conservation plans. How will the project help to successfully implement the plans?

The project is consistent with the principals laid out in the Sacramento River Conservation Handbook (DWR 1998). The project represents a significant area of habitat in the Red Bluff to Chico Landing Reach, and would increase by about 10% (DWR 1998) the riparian habitat over this nearly 50 mile stretch.

3. Describe the surrounding vicinity. Include the presence or absence of large urban areas, rapidly developing areas, and adjacent disturbed areas with non-native vegetation and other anthropogenic features. Do any surrounding areas detract from habitat values on the site?

The project area is located within a mostly rural area with conservation properties nearby. The east bank of the river is considerably more populated. No remarkable features detract from the habitat values on the site.

4. Describe compatibility with adjacent land uses.

This conversion would be compatible with the downstream properties in conservation. The adjacent landowner to the west is currently the leasee on the USFWS property, and has worked cooperatively with the USFWS. We plan to work with him during the planning process.

A5. Viability/sustainability of habitat improvements (40)

1. Describe any future operation, maintenance and monitoring activities planned for the site. How would these activities affect habitat values?

The site will be managed for wildlife habitat, and potential maintenance activities will be oriented toward enhancing habitat. The proposed project is designed to require only minimal maintenance such as firebreaks or targeted weed control.

2. Does the site contain large areas of native vegetation or is it adjacent to large protected natural areas or other natural landscapes (for example, a large stand of blue-oak woodland adjacent to public land)?

On La BARRANCA riparian forest and woodland occupies about 175 acres, while savanna and gravel bars (some of it impacted from mining operations) occupies about 150 acres.

The downstream conservation parcels (10 miles owned by USFWS) will also contribute to this connection. The Blackberry Island Unit contains about 20 acres in existing habitat. Because of its proximity to the foothills and in the northernmost area of the Central Valley, the ranges of many plants and animals overlaps on the site. For example, two different native buckwheat plants and tarplants are found on the site that are uncommon in other areas of the lower Sacramento River.

3. Is the watershed upstream of the site relatively undisturbed or undeveloped and likely to remain so into the foreseeable future? Describe its condition.

The watershed upstream is disturbed, but some natural functions to operate, albeit in an altered state. Numerous efforts are devoted to improving the condition of the Sacramento River. Some of the river frontage upstream is owned by entities (BLM, USFS, city of Redding) that will be compatible with conservation ownership. A significant area lies within urban areas (Redding, Anderson, Red Bluff). Many tributaries in this reach of the river have only small diversions, but the hydrograph of the Sacramento River is altered due to the operation of Lake Shasta.

4. Describe any populations of native species or stands of native habitats that show representative environmental settings, such as soil, elevations, geographic extremes, or climatic conditions (for example, the wettest or most northerly location of a species within the state.)

Because the Sacramento River essentially becomes a meandering river on the La BARRANCA Unit, the site offers some unique opportunities. For example, cutoff channels on the Unit represent the first such feature that juvenile salmon spawned upstream would encounter. The site contains upland and riparian vegetation and coupled with its location on a major wildlife corridor, may make this an important site for to buffer the system against ecosystem or climate changes.

VI. (320 points) Miscellaneous Benefits and Quality of Proposal

A. Size of request, other contributions, number of persons benefiting, cost of grant per benefited person (40)

Estimated Total Project Cost			
With previous acquisition			\$5,590,050
Phases I, II, and III only			\$2,633,050
Amount of FPCP Grant Funds Requested			\$2,523,050
Amount of Local Funds Contributed			-
Amount of In-kind Contributions			-
Additional Funding Sources	potentially AFRP	\$	70,000
Number of persons expected to benefit			
Flood protection			200
Potentially thousands if recreation is included			
Flood Protection Corridor Funds per person benefited.*		\$	12,615
(* Count as beneficiaries those receiving flood benefits, recreational users of habitat areas protected by the Project, and consumers of food products from agricultural areas conserved by the Project.)			

B. Quality of effects on water supply or water quality (90)

1. Will water stored by the project provide for any conjunctive use, groundwater recharge, or water supply benefit?

Floodwater on the site may contribute to groundwater recharge. The project will have a positive effect on water quality for several reasons 1) the transformation of the site from orchard to riparian forest will remove the application of agricultural chemicals, 2) revegetation with native plants will reduce the potential for soil erosion and trap sediment, 3) retiring and capping the well at the end of the project will remove a potential source of aquifer contamination and reduce groundwater pumping.

2. Does the project fence cattle out?

No. Cattle have not used the site in decades.

3. Does the project pass water over newly developed fresh water marsh?

No, but water will pass over seasonal wetlands.

4. Does the project trap sediments?

Yes. The expansion of the floodplain along with its revegetation will allow native plants and grasses to trap sediments as floodwater passes over the site.

C. Quality of impact on underrepresented populations or historic or cultural resources (60)

1. Does the project benefit underrepresented populations? Explain.

Many of the restoration tasks will be completed by labor contractors, which are typically comprised of Hispanic laborers. This project would provide wages for temporary jobs.

2. Are historical or cultural resources impacted by the project? Explain.

Historical or cultural resources are not likely to be impacted by the project. Restoration activities are less intrusive than the past agricultural and mining operations. Earthmoving activities will occur in areas that have been manipulated in the past. The USFWS will conduct an archeological assessment as part of the environmental assessment.

D. Technical and fiscal capability of the project team (60)

1. Does the project require scientific or technical expertise, and if so, is it provided for in the grant proposal?

Yes. Sacramento River Partners have successfully initiated restoration projects on approximately 2,000 acres, and have provided expertise to a variety of organizations on complex floodplain management issues. As in Phase I, we will work closely with experts from USFWS, DWR, and CSUC on key aspects of the project.

2. Grant funds will be available in phases. What monitoring and reporting mechanisms are built into your administrative plan to track progress, initiation, and completion of successive phases?

Sacramento River Partners has developed an adaptive management model to track project performance. On an annual basis, we will provide an end of season report to:

- Communicate implementation activities to our partners,
- Document the completion of project milestones,
- Present the monitoring results,
- Evaluate the effectiveness of field activities,
- Provides a budget analysis, and
- Recommend specific actions to meet the project objectives.

The end of season report documents the information generated during monitoring and the end of season meeting, and recommends changes to implementation actions or the project objectives. The report will help managers budget and prioritize the project's needs. In addition, we will maintain frequent contact with the funding agency and other partners to keep them informed of project progress.

3. Please outline your team's management, fiscal and technical capability to effectively carry out your proposal. Mention any previous or ongoing grant management experience you have.

In the last 4 years SRP has built the organizational capability to complete complex projects. We have secured \$11,000,000 in public and private funding, built a staff of 21

full time employees and developed the organizational capacity to carry out our mission of creating wildlife habitat for the benefit of people and the environment. We are in the process of restoring 1,700 acres on 16 separate projects along both the Sacramento and San Joaquin Rivers. We recently acquired a \$1.7 million dollar riverside property and hold purchase agreements on two other parcels. SRP's science team has completed fish entrapment studies, Valley Elderberry Longhorn Beetle surveys, and pre-restoration plans for several agencies. SRP has a two person accounting staff devoted to tracking expenses related to grant management.

E. Coordination and cooperation with other projects, partner agencies, and affected organizations and individuals (80)

1. List cost sharing and in-kind partners and any other stakeholders involved with your project and indicate the nature of their contribution, if any. Address the team's ability to leverage outside funds.

Cooperation was a very important part of Phase I of this project and we anticipate that continuing into the next phases. For example we hosted 4 meetings with local stakeholders to gather input and share information on the project. We were also fortunate to work with several experts from a variety of organizations (CSU Chico, Department of Water Resources, MBK Engineers, Point Reyes Bird Observatory, and USFWS's Red Bluff Fisheries Office).

2. Does your project overlap with or complement ongoing activities being carried out by others (such as CALFED, the Sacramento and San Joaquin River Basins Comprehensive Study, the Delta levee program, local floodplain management programs, the Reclamation Board's Designated Floodway program, or a multiple objective regional or watershed plan)? If so, indicate any coordination that has taken place to date or is scheduled to take place in the future.

Several elements of this project overlap with the efforts listed above.

3. Will this application, if approved, begin the next phase of a previously approved project or advance an ongoing project substantially toward completion?

Approval of this project begins the next and final phase (Phase III implementation) of the project. The phases can be summarized as follows:

- Property acquisition-La Barranca (1993, \$2,800,000) and Blackberry Island (2002, \$157,000),
- Phase I Feasibility Study (2002) - The AFRP provided \$40,000
- Phase II Environmental Assessment – USFWS is seeking additional AFRP funds (\$70,000) to complete.

4. Describe how the proposal demonstrates a coordinated approach among affected landowners, local governments, and nonprofit organizations. If other entities are affected, is there written support for the proposal and a willingness to cooperate?

In Phase I we hosted several meetings and mailed information to local landowners. Working with agency partners and the county was an important part of that project. The constructive tone set by this approach should help with the future phase of the project.

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Attachments

Environmental Checklist

Feasibility Study (SRP 2002) (electronic only)